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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,593	03/19/2004	Jack B. Andersen	D2A1190-1	9249

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EXAMINER

HUNG, STEPHEN C

ART UNIT	PAPER NUMBER
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2615

MAIL DATE	DELIVERY MODE
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05/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/805,593

Applicant(s)

ANDERSEN ET AL.

Examiner

Stephen C. Hung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-19 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/15/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. **Claims 1, 3, 4, 6-10, 12-16, and 18-19** are rejected under 35 U.S.C. 102(e) as being anticipated by **Moon et al. (US 6,799,234 B1)**.

Claim 1. Moon teaches a system (Figure 1) comprising:

a plurality of digital audio controller chips (Figure 1, master 10, slaves 12(1)-12(N))

a synchronization line (Figure 1, SYN) connected to each of the plurality of chips

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wherein one of the plurality of chips is a master (Figure 1, master 10), and the remainder of the plurality of chips are slaves (Figure 1, slaves 12(1)-12(N))

wherein the master (Figure 1, master 10) is configured to generate a synchronization signal on the synchronization line (Figure 1, SYN)

wherein each of the slaves (Figure 1, slaves 12(1)-12(N)) is configured to detect the synchronization signal (Figure 1, SYN) and to begin synchronized operation in response to detecting the synchronization signal

Claim 3. Moon teaches the system of claim 1, wherein the master (Figure 1, master 10) is configured to detect the synchronization signal (Figure 1, SYN) and to begin synchronized operation in response to detecting the synchronization signal ("master device initiates an information transfer," column 1, lines 20-21)

Claim 4. Moon teaches the system of claim 1, wherein the master (Figure 1, master 10) is designated during an initialization process ("master device initiates an information transfer," column 1, lines 20-21)

Claim 6. Moon teaches the system of claim 1, wherein the synchronization signal (Figure 1, SYN) comprises a transition from a passive state ("switches 37 are closed," column 4, line 18) to an active state ("switch 37 are opened," column 4, line 26)

Claim 7. Moon teaches the system of claim 6, wherein the master (Figure 1, master 10) is configured to repeat the transition at a fixed intervals ("the master controls the number of fixed duration," column 3, line 1)

Claim 8. Moon teaches the system of claim 7, wherein the master (Figure 1, master 10) is configured to maintain the active state for a fixed period after each transition ("The master asserts the chip select but in the time slot assigned to the slave," column 4, lines 5-6)

Claim 9. Moon teaches the system of claim 8, wherein each slave is configured to sample the synchronization line during the fixed period to determine whether the synchronization line is in an active state ("the switch 37 is opened and the slave counters will once again beginning counting as described earlier," column 4, lines 26-27)

Claim 10. Moon teaches the system of claim 9, wherein each slave is configured to take multiple samples during the fixed period and to determine whether the synchronization line is in an active state based upon a majority of the multiple samples ("slave multiplexer control chip control logic 44 takes the reading of the RD 42, and begins monitoring the multiplexer bus's slave time slots," column 3, lines 57-60)

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Claim 12. Moon teaches the system of claim 9, wherein each slave is configured to filter samples of the synchronization line ("slave multiplexer control chip control logic notes the next time slot, waits for one frame delay, and attempts to assert the assigned but of that slot," column 3, lines 65-67)

Claim 13. Moon teaches the system of claim 1, wherein the master (Figure 1, master 10) is configured to transmit data to the slaves (Figure 1, slaves 12(1)-12(N)) via the synchronization line (Figure 1, SYN)

Claim 14. Moon teaches the system of claim 13, wherein the synchronization signal (Figure 1, SYN) comprises a transition from a passive state ("switches 37 are closed," column 4, line 18) to an active state ("switch 37 are opened," column 4, line 26), wherein the master (Figure 1, master 10) is configured to maintain the active state for a fixed period ("fixed duration," column 3, line 1), then transition from the active state to the passive state, then maintain the passive state for a fixed period, then transmit data

Claim 15. Moon teaches the system of claim 1, wherein each of the slaves is configured to determine whether an error has occurred and, in response to detecting an error, to cause the master to re-synchronize the slaves ("If more than one slave selected the same assigned time slot, the master will detect the fact via a frame check sequence error on the SPU data. Having detected an error, the master issues a "reset" signal to that time slot in the next frame," column 4, lines 9-13)

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Claim 16. Moon teaches the system of claim 15, wherein causing the master to re-synchronize comprises driving the synchronization line (Figure 1, SYN) to the active state (Figure 2, bit 0 = reset)

Claim 18. Moon teaches the system of claim 1, wherein the master (Figure 1, master 10) is configured to determine whether all of the slaves (Figure 1, slaves 12(1)-12(N)) are ready to begin synchronized operation before generating the synchronization signal ("a slave device is controlled by a master through a slave select line," column 1, lines 22-23)

Claim 19. Moon teaches the system of claim 18, wherein each of the slaves (Figure 1, slaves 12(1)-12(N)) is configured to drive the synchronization line (Figure 1, SYN) to an active state ("switch 37 are opened," column 4, line 26) until the slave is ready to begin synchronized operation, and wherein the master is configured to determine that all of the slaves are ready to begin synchronized operation if the synchronization line is in a passive state ("switches 37 are closed," column 4, line 18)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US 6,799,234 B1)** in view of **Intrater et al. (5,822,779)**.

Claim 2: Moon teaches digital audio controller chips. However, Moon does not teach that those chips are PWM chips.

In the same field of endeavor, Intrater teaches PWM chips (Figure 1, PWM 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ^{use} PWM chips, in a similar manner ^{as} taught by Intrater, since a PWM chip "generates a square wave with a fixed frequency and a variable duty cycle" (Intrater, column 2, lines 21-23).

5. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US 6,799,234 B1)** in view of **Burkhardt et al. (US 6,854,053 B2)**.

Claim 5: Moon teaches master and slaves chips. However, Moon does not teach that they have identical circuitry.

In the same field of endeavor, Burkhardt teaches master and slave chips with identical circuitry (Figure 1, master processor 12 and slave processor 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use identical circuitry, in a similar manner taught by Burkhardt, for the advantage of “identifying and communicating with each slave in a master-slave system in a simple and efficient manner” (Burkhardt, column 2, lines 63-65).

6. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US 6,799,234 B1)** in view of **Song (US 6,639,956 B1)**.

Claim 17. Moon teaches the system according to claim 1. However, Moon does not teach where the system is configured to align a phase of an output of each controller chips by synchronizing the slaves with the master and to then stagger each of the phases.

In the same field of endeavor, Song teaches chips intended for the alignment of the phase difference (“phase detector 50 to align the local clock with the quarter clock,” column 3, lines 42-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to align the phase, in a similar manner taught by Song, since the phases “need to be in sync” (Song, column 1, line 40).

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Allowable Subject Matter

7. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

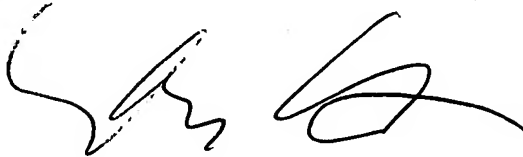
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen C. Hung whose telephone number is (571)270-1457. The examiner can normally be reached on M-Th 7:30am-5pm, Every other Friday 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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S.H.

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SUPERVISORY PATENT EXAMINER